REGIONAL BIASES OF RESEARCH AND DEVELOPMENT IN HUNGARY

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ABSTRACT

Research, development and innovation are very important drivers of regional development in knowledge-based societies. But R&D staff and expenditure show significant regional differences in Hungary and in the European Union as well. In Hungary 60% of staff and expenditure are concentrated in the capital, and the gap between Budapest and the rest of the country is not closing. This is a problem for those regions that are left out from the knowledge-based development, but also a drawback for the country as a whole. In my paper I analyze the regional biases of research and development in Hungary on the basis of statistical data, and summarize the consequences of these differences.

1. INTRODUCTION

Research and development (R+D) trigger progress and competitiveness both in countries and in particular regions of countries with knowledge-based economies. This, however, becomes effective on a nationwide scale provided R+D capacity and activity are not concentrated in a single region but are distributed among a number of scientific centers with distinction which promote the hosting of innovative enterprises and development based on the application of expertise and/or the production of competence within the region concerned.

Statistics shows, however, that research development in Hungary – that is, the number of researchers –, the budget for R+D and, also, scientific impact are marked by Budapest-centeredness while in regions outside the Capital there is considerable research activity only in counties hosting universities.

In this paper I am considering the limited role localities, counties and regions play in the politics of innovation. I am analyzing the distribution of research staff, R+D budgeting and scientific performance, and, then, summarize the negative effects resulting from regional inequalities.

2. THE ROLE OF LOCALITIES, COUNTIES AND REGIONS IN INNOVATION POLITICS

The country report issued by the European Union, monitoring our country, states that innovation politics reflects the fact that Hungary is basically operated centrally. Though – mainly due to external pressure by the Union – lower levels of innovation politics have been gathering more and more choices to participate, the key-role of Budapest and that of the central government and its agencies has been remaining unchallenged.

As far as the level of local administration is concerned local governments have been having difficulties in providing many services (education, health service, public

services, the maintenance of infrastructure, etc.) while financial resources are provided mainly by the central administration's budget due to the essentially redistributive nature of the budgeting system instead of letting local governments operate on a basis of an income of their own. Central financing is, on the other hand, operated by short-term fiscal considerations which situate numerous local administrations in rather an uncomfortable financial position. In such circumstances – with the exception of some larger towns – it is entirely impossible to finance local R+D activities. Local governments are not able to have immediate influence in the field e.g. via setting up industrial parks, providing allowances in taxation for possible innovative enterprises moving to the locality.

Neither does county-level administration play an important role in innovation politics because in spite of the fact that R+D protocols are passed by county boards of development these programs are designed in view of preferences issued by the Economic Competitiveness Program and by the Fund for Research in Technological Innovation (KTIA) and budgeting is operated under their auspices.

As far as the regional level is concerned there are no regional boards for innovation in Hungary due to the centralized system of institutional R+D activities. Each of the 7 regions has set up a regional strategy in innovation (as part of the general regional development strategy but regions are in a position akin to that of the counties: the various regional development programs are generally related to national programs and to that of the European Union, and, are based on such budgets. Consequently, there are no such things as independent R+D plans. Although 25% of KTIA finances regional programs and the national Baross Gábor Project is also to promote the establishing of regional innovation networks, the decisions relating to them are made by the Board for Research and Technological Innovation instead of regional boards. (EU, 2007)

3. REGIONAL BIAS IN THE NUMBER OF RESARCHERS

More than half of the number of R+D researchers is concentrated in the area of Central Hungary, i.e., the number of researchers in the rest of the 6 regions is smaller than the number of researchers working in the Capital (Table 1).

Table 1. The distribution of researchers in the 7 regions in 2007.

	Number of R+D researchers	Share within the overall R+D staff in Hungary
Central Hungary	16 273	63 %
South–East Hungary	2 203	8%
North-East Hungary	2 018	8%
South-West Hungary	1 628	6%
Mid-West Hungary	1 429	6%
West Hungary	1 268	5%
North Hungary	1 152	4%

Source: KSH (2008), own compilation

Oddly enough, the bias between the number of central and "country" researchers has not decreased (Table 2) [Hungary shaped the system of European statistic regions {NUTS level 2} in 2000 and regional data have been available since then].

Table 2. The Number of researchers in the seven regions of Hungary, 2000-2007.

	Central Hung.	South-East	North-East	South-West	Mid-West	West Hungary	North Hungary
2000	15 131	2 170	1 991	1 067	1 463	948	764
2001	14 680	2 129	1 777	1 053	1 304	1 159	840
2002	15 136	2 156	1 973	965	1 294	1 084	1 095
2003	15 124	2 099	1 909	1 064	1 139	1 020	956
2004	14 741	1 910	1 763	1 244	1 206	895	1 067
2005	14 740	2 126	1 946	1 342	1 158	966	961
2006	16 273	2 203	2 018	1 628	1 429	1 268	1 152
2007	16 252	2 401	2 417	1 066	1 417	1 246	1 155

Source: KSH (2000-2007).

The analysis of the indicators of countries reveals that there is no doubt, besides the Capital, scientific activity, is mostly located in regions with larger universities run by the state and with research institutes belonging to the Academy (in bold type, Table 3).

Table 3. The number of research sites in the counties of the 7 regions in 2007.

REGIONS AND THEIR COUNTIES	RESEARCH SITES
Central Hungary	
Budapest	**1 119**
Pest	175
Mid-West	
Veszprém County	**84**
Fejér County	75
Komárom-Esztergom C.	27
West Hungary	
Győr-Moson-Sopron C.	**122**
Vas County	61
Zala County	33
South-West	
Baranya County	**180**
Tolna County	14

Somogy County	52
North Hungary	
Borsod-Abauj-Zemplén County	**102**
Heves County	60
Nógrád County	11
North-East Hungary	
Hajdú-Bihar County	**224**
Szabolcs-Szatmár-Bereg County	76
Jász-Nagykun-Szolnok C.	35
South-East Hungary	
Csongrád County	**207**
Bács-Kiskun County	72
Békés County	31

Source KSH (2008), own compilation

4. MAGNITUDE OF BIASED R+D BUDGETING

R+D budgeting and the number of researchers are biased in a similar way. The region in which Budapest is located receives 70% of the country's overall research and development finances while the rest has to make do with 30% (Table 4).

Table 4. Finances in the 7 regions of Hungary in 2007.

	R+D finances 1.000HUF	R+D finances %
Central Hungary	163 076 197	70%
North-East	18 113 418	8%
South-East	16 941 277	7%
Mid-West	11 336 808	5%
West Hungary	9 431 258	4%
North Hungary	7 362 934	3 %
South-West	6 926 078	3%

Source: KSH (2008), own compilation

The biased distribution of R+D budgeting between the Capital and the Country has not been leveled during the past couple of years at all (Table 5).

Table 5. R+D expenses/year in the 7 regions of Hungary, 2000-2007.

	Central H.	N-East	S-East	Central-W.	West H.	North H.	South-W.
2000	69 166 434	8 035 683	7 844 468	5 223 863	2 915 992	2 428 885	3 892 687
2001	88 262 705	9 109 756	9 195 809	7 914 511	7 006 992	2 836 299	4 630 235
2002	111 346 304	11 181 656	11 941 673	10 398 436	5 676 675	3 897 451	5 848 959
2003	115 130 505	13 073 449	13 047 556	9 775 062	6 261 023	4 121 068	5 220 114
2004	116 692 151	14 760 749	11 895 667	10 820 468	8 224 735	4 729 254	5 773 000
2005	138 789 817	17 913 272	14 658 234	9 673 362	6 736 572	5 890 267	6 458 542
2006	163 076 197	18 113 418	16 941 277	11 336 808	9 431 258	7 362 934	6 926 078
2007	158 761 218	20 446 096	18 983 122	12 916 380	14 818 976	8 372 796	6 072 343

Source: KSH (2008).

The majority of R+D expenses has been provided (*in lack of significant enterprise operated research and development activities* – G.K.) by central resources. This way administrational budgetary politics has been maintaining a solid concentration within the Capital and the inequalities remain the way they always have been. Most of these resources have been used by state universities and, consequently, inequalities within regions have also stayed (Lengyel, 2003).

If R+D finances are mapped onto the population the privileged status of Central Hungary becomes even more highlighted. Here, in the Central Region, R+D finances/inhabitant is 2.4 times more than the national average. The advantage enjoyed by the central region is significantly bigger than the extent its share in higher education or its economic performance would indicate since the number of full time students in the region of Central Hungary and the GDP/person is only 1.6-1.7 times more than the national average (KSH, 2008).

5. DISPARITIES OF SCIENTIFIC PERFORMANCE

It is a fact that scientific performance (successfully completed research projects, experimental developmental projects) has also shown significant concentration. But, on the other hand, the difference between the Capital and the Country is much smaller than the difference between the numbers of researchers and the two R+D budgets (Table 6).

Table 6. Successfully completed research projects, experimental developmental projects in the 7 regions of Hungary in 2007.

	Successfully completed research projects, experimental developmental projects (/item)	Successfully completed research projects, experimental developmental projects (%)
Central Hungary	4 647	54%
North Hungary	934	11%
West Hungary	815	10%
South-East	750	9%
North-East	645	8%
Mid-West	484	6%
South-West	260	3%

Source: KSH (2008), own compilation

This table shows that the efficiency of input and research staff is lower at sites located in Budapest than in the scientific centers in the Country. Budapest receives 70% of the overall input while produces just a bit more than half of the scientific performance. In the South-East Region research performance is 3 times more than the proportion of input, and in the West Hungary Region it is 2 and a half times more.

6. CONSEQUENCES

Disproportionate regional R+D activities are dangerous because, within a region, primarily, effective R+D programming would gear an enduring increase in competitiveness (Lengyel, 2003). Capacities at hand within the academic and higher educational centers in the country provide the chance of a more rapid development and they, at the same time, offer more favorable conditions for the reordering of local and regional economy (Hardi, Rechnitzer, 2003). But in counties in lack of academic and university research plants (that is, in the majority of the counties) there is no chance for innovative enterprises to settle because neither conditions in human resources nor institutions of innovation have been provided for this. "International data suffice to say that within underdeveloped regions, due to the lack of transferred technology, a dynamic increase in performance is unlikely to occur. Consequently, in these regions economic development also continues to grow slowly. They cannot switch from a factor-oriented phase onto an investment-oriented one, from the Neo-Fordite phase to a knowledge-extensive one. So incomes and the standard of living will remain low." (Lengyel 2003)

The concentration of research capacity is problematic on a nationwide level because the potential of academic centers in the country has not yet reached the critical mass that might do for the basis of a knowledge-based economy. An economy based on Budapest-centeredness can hardly increase the country's performance any further (Gál 2005, Gál 2006).

7. ASSESSMENT

In knowledge-based economies research and development trigger the development and competitiveness of a country, and, within the country, that of its regions. Statistical data reveal, however, that research-developmental activities, the number of researchers, R+D input finances and scientific output have been marked by permanent Budapest-centeredness; while, besides the Capital, there are significant scientific activities solely in counties hosting universities.

Regions have not been leveled conspicuously since the change in the political regime, on the contrary: new types of inequalities have developed. New episteme has accumulated in definitive concentration in the Capital and, to a lesser extent, in regional centers and this will be dispersing to lower levels of localities slowly, at a modest speed – one might say, surreptitiously –, in some cases, randomly (Rechnitzer, Smahó, 2005).

The scientific "hydrocephaly" of the country has a number of detrimental consequences, which hinder progress both on a national and on a regional level.

- The scientific potential in towns hosting universities in the country has not reached the critical mass that could provide a sufficient basis for the development of a knowledge-based regional economy.
- A single center is unable to provide the scientific output that would make a paradigmatic change in the national economy promoting innovation and value-added assessment viable.
- Regions with hardly any research potential may have no chance to welcome enterprises of innovation. Development and the standard of life in these areas that have been doomed to stay on the periphery, consequently, will be remaining permanently low.

8. CONCLUSION

R+D capacity and activities ought to be extended in Hungary for the sake of national and regional development. The strategy that has been issued by the government has put it this way: a strategy based on innovation should be one of the definitive segments of the strategy of regional development. With the strengthening of innovation potential within poles of development the regional imbalances of a nationwide system of innovation ought to be moderated. Integrated professional centers, technology-transfer centers and centers for innovation must be set up in each region and they will be the region's intellectual R+D+I centers (MEH, 2007).

The fact that scientific activities carried out in the central region are less effective than those that are going on in the country would definitely indicate that the research potential situated in the country should be developed.

At the same time, the regional structure of higher education should be modified in order to let at least the significant university centers in the country increase their size and impact so as to match the standard of European average, and to reach the critical mass in research potential at the level of which they will be able to become the bases of a knowledge-based economic development.

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